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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/535,163

**Applicant(s)**

KRESSNER, GERHARD

**Examiner**

Laura C. Guidotti

**Art Unit**

3723

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 24-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 24-43, 45 and 47-50 is/are rejected.
- 7) ☒ Claim(s) 44 and 46 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 May 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/083)
- Paper No(s)/Mail Date 05162005
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "60" and "61" (Figure 2). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "11" has been used to designate both a brush head carrier and a brush tube and also reference character "8" has been used to designate both a bristle set and a handpiece. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being

amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the plurality of drive couplers, more than one eccentric driver, driver pin moves in a cylindrical or conical orbit (it is noted that the driver pin is numeral 50), joint axis, a spring biasing the eccentric driver against the bristle support, and a spring biasing the translator element against a bristle support must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

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application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

4. Claims 30-36 are objected to because of the following informalities:

Each of claims 30 and 34 depend from claim 1, however claim 1 has been canceled. It appears that this is a typographic error and that the Applicant intends claims 30 and 34 to each depend from claim 24.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 24, 28-29, 34-36, 38-43, 45, 47, and 49-50 are rejected under 35 U.S.C. 102(b) as being anticipated by Herzog, US 5,504,958.

Herzog discloses the claimed invention including a toothbrush head comprising a brush head carrier (1) that is releasably connectable to a hand piece of an electric toothbrush (Column 3 Lines 22-27), the brush carrier comprising a translator element rotatable about a longitudinal rotation axis within the brush head carrier (4; Column 3 Lines 45-48), a plurality of bristle supports (11, 12, 13, 14, 15, 16) that carry a respective bristle set (17, see Figures) and are movably mounted on the brush head carrier (Column 4 Lines 34-39), and a plurality of drive couplers (the drive couplers are integral to the bristle support and include the areas having 19, 20, 21, 22, 23, 24), each drive coupler being coupled to a respective bristle support (Figures 3, 4; Column 4 Lines 13-17) and eccentrically coupled to the translator element by one or more eccentric drivers (eccentric drivers are 5), such that each of the bristle supports is oscillated in response to rotation of the translator element (Column 4 Line 50 to Column 5 Line 2) (claims 24, 50). Regarding claim 28, the brush head carrier is non-rotatably coupled to the hand piece (connected by push-fit, Column 3 Lines 26-27). Regarding claim 29, each of the bristle supports has its own axis of motion transverse to the longitudinal axis (the components of motion shown triangularly by 27-29 and 31-33 in Figures 3 and 4 are all transverse to the longitudinal axis). Regarding claim 34, the bristle supports include an "auxiliary" bristle support (any one of 11-16 can be considered "auxiliary") mounted for translational displacement along a motion axis transverse to the longitudinal rotation axis of the translator element (the components of motion shown

triangularly by 27-29 and 31-33 in Figures 3 and 4 are all transverse to the longitudinal axis). Regarding claim 35, the motion axis is arranged approximately parallel to a main bristle direction of bristles of the auxiliary bristle support (as motion components 29 and 32 are parallel to bristles 17, see Figures 3-4). Regarding claim 36, the motion axis is arranged transverse to a longitudinal axis of the toothbrush head and approximately parallel to a plane defined by the auxiliary bristle support (as motion components 29 and 32 are parallel to a top surface plane of the bristle support, see Figures 3-4). Regarding claim 38, at least one of the drive couplers is coupled to the eccentric driver with a translational degree of freedom allowing translational motion in a direction transverse to the longitudinal rotation axis of the translator element (see components of motion shown triangularly by 27-29 and 31-33 in Figures 3 and 4). Regarding claim 39, the eccentric driver is guided within a longitudinally slotted clearance space defined within the at least one of the drive couplers (21, 22). Regarding claim 40, one of the bristle supports defines a sliding surface that extends transverse to a longitudinal axis of the toothbrush head and on which the eccentric driver is adapted to slide (the sliding surface being the surfaces of 21, 22, see Figures 3-4). Regarding claim 41, there is a biasing device biasing the sliding surface against the eccentric driver (8, 9; see Figures 3-4). Regarding claim 42, at least one of the drive couplers is constructed such that forces and movements are transmitted exclusively in a direction transverse to a longitudinal direction of the toothbrush head (see Figures 3-4). Regarding claim 43, the drive couplers are free to move in a plane containing a longitudinal direction of the toothbrush head (in that when 11-16 move, they contain a longitudinal direction) and being force-

transmitting in a plane perpendicular thereto (force-transmission is in the components of motion triangularly by 27-29 and 31-33 in Figures 3 and 4). Regarding claim 45, at least one of the drive couplers is integral with its respective bristle support and in positive engagement with the driver (again, as the drive couplers are integral to the bristle supports and include the areas having 19, 20, 21, 22, 23, 24). Regarding claim 47, the translator element (4) comprises a disengageable rotary coupling adapted to engage a drive element of a toothbrush hand piece (Column 3 Lines 22-28, 43-48). Regarding claim 49, the toothbrush comprises a hand piece equipped with an electric drive (Column 3 Lines 22-26) and a toothbrush head is releasably secured to the hand piece (Column 3 Lines 26-28).

6. Claims 24-26, 29-33, 37-40, 42-43, 45, and 49-50 are rejected under 35 U.S.C. 102(a) and 102(e) as being anticipated by Kuo, US 6,434,773.

Kuo discloses the claimed invention including a toothbrush head comprising a brush head carrier (10) that is releasably connectable to a hand piece of an electric toothbrush (at 6), the brush carrier comprising a translator element rotatable about a longitudinal rotation axis within the brush head carrier (216), a plurality of bristle supports (unlabeled, disc-shape support upon which bristles 8 and 9 are mounted as shown in Figure 2g) that carry a respective bristle set (8, 9) and are movably mounted on the brush head carrier (see Figures 2h, 2i; Column 7 Lines 15-43), and a plurality of drive couplers (the drive couplers are the protrusions forming notch 290 on each of the supports carrying bristles 8, 9 as shown in Figures 2g-2i), each drive coupler being coupled to a respective bristle support (Figures 2g-2i) and eccentrically coupled to the



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translator element by one or more eccentric drivers (226), such that each of the bristle supports is oscillated in response to rotation of the translator element (Figures 2g-2i, Column 7 Lines 15-43) (claims 24, 50). Regarding claim 25, there is a driver pin coupling the eccentric driver to one of the bristle supports (234). Regarding claim 26, the driver pin moves in a cylindrical orbit or partial orbit in the shape of a cylinder segment relative to the rotation axis of the translator element (as translator 216 rotates, pin 234 rotates in a cylindrical orbit, see Figure 2f). Regarding claim 29, each of the bristle supports has its own axis of motion transverse to the longitudinal axis (see Figures 2h, 2i, the bristle supports rotate about an axis central to 8 and 9). Regarding claim 30, each of the bristle supports are capable of being considered a main bristle support and are rotatable about an axis of rotation essentially perpendicular to the longitudinal rotation axis of the translator element (see Figures 2h, 2i, the bristle supports rotate about an axis central to 8 and 9). Regarding claim 31, the "main" bristle support is disposed at a distal end of the brush head carrier (when main bristle support is 8, see Figures). Regarding claim 32, the bristle supports further include an auxiliary bristle support (either 8 or 9 could be considered an "auxiliary" bristle support) pivoted about a pivot axis essentially perpendicular to the longitudinal rotation axis of the translator element (see Figures 2h, 2i, the bristle supports rotate about an axis central to 8 and 9). Regarding claim 33, the pivot axis of the auxiliary bristle support is approximately parallel to a plane defined by the auxiliary bristle support (when the plane defined by the auxiliary bristle support is vertically extended.) Regarding claim 37, at least one of the drive couplers is capable of flexing about a joint axis transverse to a

longitudinal axis of the toothbrush head (as the protrusions of 290 are capable of flexing, the joint axis being the location where 290 and 234 join together, that axis being transverse to a longitudinal axis of the toothbrush head). Regarding claim 38, at least one of the drive couplers is coupled to the eccentric driver with a translational degree of freedom (as 234 drives translationally within notch 290), allowing translational motion in a direction transverse to the longitudinal rotation axis of the translator element. Regarding claim 39, the eccentric driver is guided within a longitudinally slotted clearance space defined within at least one of the drive couplers (290). Regarding claim 40, one of the bristle supports defines a sliding surface that extends transverse to a longitudinal axis of the toothbrush head and on which the eccentric driver is adapted to slide (the sliding surface being the surfaces 290). Regarding claim 42, at least one of the drive couplers is constructed such that forces and movements are transmitted exclusively in a direction transverse to a longitudinal direction of the toothbrush head (see Figures 2g-2i). Regarding claim 43, the drive couplers are free to move in a plane containing a longitudinal direction of the toothbrush head (in that when 8 and 9 move, they contain a longitudinal direction) and being force-transmitting in a plane perpendicular thereto (Figures 2g-2i). Regarding claim 45, at least one of the drive couplers is integral with its respective bristle support and in positive engagement with the driver (the drive coupler are integral to the bristle supports and include the areas having 290). Regarding claim 49, the toothbrush comprises a hand piece equipped with an electric drive (12) and a toothbrush head is releasably secured to the hand piece (at 6).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo, US 6,434,773.

Kuo discloses all elements mentioned above, including that the driver pin moves in an orbit relative to the rotation axis of the translator element. Kuo, however, does not disclose that the driver pin moves in a conical orbit or in a partial orbit in the shape of a cone segment relative to the rotation axis of the translator element.

It would have been obvious for one of ordinary skill in the art to shape the driver pin of Kuo (234) so that it was at an angle so that it moves in a conical orbit relative to the rotation axis of the translator element as it would provide the same transmission of motion. Applicant has not disclose that having the driver pin moves in a conical orbit or in a partial orbit in the shape of a cone segment relative to the rotation axis of the translator element provides an advantage, is used for a particular purpose, or solves a stated problem.

8. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo, US 6,434,773 as applied to claim 24 in view of Driesen, US 5,652,990.

Kuo discloses all elements previously mentioned above, however does not disclose that the bristle tufts are of varying orientations, cross sections, lengths, or tilted at varying angles.

Driesen teaches a disc-shaped bristle support (38) that carries bristle tufts having varying lengths and cross-sections (see Figures 2, 5) so that bristles more central to a rotation axis of the support are shorter than those near the outer perimeter of the support so that the longer bristles can clean interproximal spaces and can remove plaque in a tooth-gingiva region, and so that the inner bristles will have a smaller diameter than those at the outer perimeter so that they are more rigid and suitable for cleaning interproximal spaces (Column 1 Line 60 to Column 2 Line 9).

It would have been obvious for one of ordinary skill in the art at the time of the invention to modify the bristle tufts of Kuo to have varying cross sections and varying lengths, as Driesen teaches, so that bristle tufts at an outer periphery of the support will be longest and have a smaller diameter than those situated near a center of the support so that those bristle tufts at the outer periphery will be able to advantageously clean interproximal areas.

9. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Herzog, US 5,504,958 as applied to claim 24 in view of Clark, US 4,766,633.

Herzog discloses all elements previously mentioned above, however does not disclose that the bristle tufts are of varying orientations, cross sections, lengths, or tilted at varying angles.

Clark teaches a toothbrush wherein within rows of tufts there is a tuft (5) longer than other tufts (4) so that the longer center row will sweep out sulcus area while the shorter bristles can support gum tissue to prevent receding gums and in addition the longer bristles can also clean grooves between the teeth (Column 1 Lines 27-43).

It would have been obvious for one of ordinary skill in the art at the time of the invention to modify the tufts of each support of Herzog to include a tufts of varying lengths, as Clark teaches, so that a centralmost tuft of each row on each support is longer than the others to provide better cleaning in the grooves between teeth and to sweep out the sulcus area.

***Allowable Subject Matter***

10. Claims 44 and 46 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter: Neither Herzog nor Kuo, or any of the prior art made of record teach or suggest a toothbrush head comprising all elements found in claim 24 in combination with (a) wherein at least one of the drive couplers is constructed such that forces and movements are transmitted in a direction transverse to a longitudinal direction of the toothbrush head and forces are transmitted in the longitudinal direction of the toothbrush head, and wherein the driver is mounted on the translator element for displacement in the longitudinal direction or (b) a spring biasing either the translator element or eccentric driver against the at least one of the bristle supports. In Herzog

and in Kuo, the bristle support is integrally coupled with the eccentric driver, the translator element does not come into contact with the bristle support.

***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura C. Guidotti whose telephone number is (571) 272-1272. The examiner can normally be reached on Monday-Thursday, 7:30am - 5pm, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hail can be reached on (571) 272-4485. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Laura C Guidotti/  
Primary Examiner, Art Unit 3723